

Respiratory health and allergies from chemical exposures among machining industry workers in Selangor, Malaysia

ABSTRACT

Background: This study was to determine the prevalence of respiratory health complaints, allergy symptom, lung functions, and the association between airborne concentrations of chromium and aluminium with respiratory health and allergy symptoms among machining industry workers in Selangor, Malaysia.

Methods: The study design was a cross-sectional comparative study. The respiratory and allergy symptoms were obtained through the American Thoracic Society (ATS) Adult Respiratory Questionnaire (ATS-DLD-78) modified questionnaire.

Results: The MWFs unexposed group had significantly higher TWA8 airborne aluminum concentration (median = 0.24 $\mu\text{g}/\text{m}^3$) than the exposed group (median = 0.13 $\mu\text{g}/\text{m}^3$) ($P=0.027$). However, no significant difference was found in the airborne chromium between both groups. Significantly higher skin itchiness was reported by the MWFs exposed group. This was further supported by the serum total IgE concentrations which was significantly higher among MWFs exposed group than the unexposed group ($P=0.024$). The prevalence of total serum IgE was significantly higher for the exposed group (54.3%) than the unexposed group (36.9%). The exposed group reported significantly higher prevalence of cough symptom, morning cough with sputum and health worries caused by metalworking fluids than the unexposed group.

Conclusion: This study showed significantly higher allergy and respiratory symptoms among the MWFs exposed group than the unexposed group. **Keyword:** Machining industry; Metalworking fluids; Allergy symptoms; IgE; Lung function